



# Knowledge, Attitude and Utilization of Cervical Cancer Screening Services among Ethnic Minority Female Students in UK University: A Cross-Sectional Study

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### Abstract

**Background:** Cervical cancer is the most frequent cancer among ethnic minority women and the most prevalent cause of cancer mortality in the UK. Furthermore, women from ethnic minority origins are more likely than British women not to carry out cervical screening due to socioeconomic issues such as lack of health insurance, language barrier and poor understanding of cervical cancer screening.

Good knowledge and a positive attitude towards receiving a cervical cancer screening are significant factors in the prevention and better outcome of cervical cancer. The study assessed the knowledge, attitude and practice of cervical cancer screening among ethnic minority female students in the Faculty of Education, Health and Wellbeing (FEHW), at UK University.

**Method:** A cross-sectional study was conducted from May, 2023 to September, 2023 on a sample of 138 ethnic minority female students in the Faculty of Education and Health & Wellbeing (FEHW), aged between 25 and 64 years, from four departments (Public Health, Health and Social care, Health and wellbeing and Occupational psychology) using a simple random sampling technique. Data was collected using a semi-structured questionnaire and analyzed using SPSS for descriptive analysis.

**Results:** In the 138 participants, a mean age was  $35.09 \pm 12.92$  years and 56.7% were African, 21.0% Asia, 17.4% Bangladesh and 5.1% Caribbean. 82.6% of them have a good knowledge of cervical cancer screening. However, a substantial number (54%) of them had negative attitudes towards cervical cancer screening services which led to a low screening rate. Additionally, most of the participants 47.8% admitted embarrassment and fear as a barrier to preventing cervical cancer screening services while 78.3% of the participants have not carried out cervical cancer screening practices.

**Conclusion:** Ethnic minority female students in the UK had good knowledge of cervical cancer screening. However, the negative attitude

and barriers encountered by the ethnic minority female students led to poor practice in the utilization of cervical cancer screening services.

**Keywords:** Cervical cancer screening; Ethnic minority; Knowledge; Attitude; Health Belief Model (HBM); Black and Asian Minority Ethnic (BAME)

**Abbreviations:** Standard Deviation (SD); Statistical Package for Social Science (SPSS); Human Papilloma Virus (HPV); Knowledge Attitude and Practice (KAP)

### Introduction

Cervical cancer remains a threat to the human population, particularly women of reproductive age. It affects 2% of women and it is the 14<sup>th</sup> most common disease diagnosed in the United Kingdom [1]. In support of these claims, the World Health Organization's (2022) most recent report indicated that cervical cancer is the 4<sup>th</sup> most common cancer in women globally, with 604,000 diagnoses and 342,000 deaths in 2020.

Moreover, the white British women undergo cervical cancer screening more than ethnic minority women in the UK. This report is in agreement with one study [2]. According to the study, women from Black and Asian Minority Ethnic (BAME) backgrounds are less likely to go for cervical screenings and GP services with lesser CCS coverage in the UK. Despite the government plans to reduce the number of deaths attributed to cervical cancer in the UK (Health and Social Care Information Centre, 2014) approximately 11,500 and 1,121 women still die from CC each year, while 50,000 and 3,791 additional women are identified with CC (HPV Information Centre 2021). Similarly, research has indicated a comparable prevalence percentage among women of all ages in several ethnic minority women (EMW) in Africa and Asia in the UK [3]. Additionally, from the World Health Organization (2019) report, an estimated 570,000 women were diagnosed with cervical cancer in 2018 and approximately 311,000 died. However, reducing these rates primarily depends on the participation of CCS among women of ethnic minorities in the UK [4]. Knowledge and awareness are critical in influencing health-seeking behaviours, particularly among women predisposed to one cause or another, such as Black Asian and Minority Ethnic women in the UK [5]. However, the findings from different studies were highlighted that knowledge-related barriers to cervical screening practices affect the non-uptake of CCS by black Asian and minority ethnic women due to the inability to seek health services and to make informed decisions regarding the lack of knowledge about where to find adequate healthcare services. Ethnic minority populations have shown a significant disparity in the uptake of cancer screening and a relationship between poor uptake and social deprivation [6]. Nonetheless, in the study which included 751 males and females from colleges, fewer than half (47%) of the participants were aware of CCS transmission and prevention [7]. The study showed that the participants lacked knowledge about the Human papillomavirus vaccine which is an important factor in preventing cervical cancer. This lack of knowledge, negative attitude and low utilization of cervical cancer screening services is a concern, as it shows that more research is needed to educate the public about HPV transmission and its prevention [8].

## Methodology

### Study Area

The study was conducted at the University of Wolverhampton, West Midlands UK. Wolverhampton is a city in England's West Midlands area with a population of 263,700. Moreover, Wolverhampton is home to numerous notable monuments, including the Wolverhampton Art Gallery, Molineux the Wolverhampton Grand Theatre and the Bantock House Museum. Furthermore, the University of Wolverhampton is a public research university with its main campus in Wolverhampton, England's West Midlands. There are three campuses for the institution: the City Campus, the Walsall Campus and the Telford Innovation Campus. It offers an advanced learning atmosphere that is supportive of complete libraries, computing resources and research centers. The University of Wolverhampton is renowned for its solid industry connections and places a significant emphasis on offering practical education and job-relevant skills. It provides courses in business, the arts, health sciences, engineering, the humanities and the social sciences (University of Wolverhampton, 2021).

### Study design

The study utilized an institution-based descriptive cross-sectional research design approach to achieve its aims [9,10]. A cross-sectional descriptive survey examines how often, more widely, or highly a variable of interest appears across a certain demography. Additionally, compared to many other types of studies, cross-sectional studies take fewer resources and time to conduct, making it easier to gather data that may be used as a starting point for further research [11]. Thus, this design approach was considered since it is much easier and cheaper to carry out compared to longitudinal study design.

### Population of the study

Female students in the FEHW at the University of Wolverhampton were the study's target population of the study.

### Eligibility criteria

All regular Faculty of Education Health and Wellbeing (FEHW) postgraduate female students were included in the study.

### Sample size determination

The Leslie-Kish formula was used to calculate the required sample size. The proportion of knowledge and attitude was derived from the findings of a study conducted in England, 90% to 95% normal distribution value at a confidence level and 5% margin of error [12]. Moreover, the Leslie Kish method of calculating the sample size technique was used because it gives an approach for predicting the proper sample size required to reach a certain level of statistical accuracy. Therefore, the following formula was used to determine the minimum sample size:

$$N = \frac{p(1-p)Z^2}{d^2}$$

- n=sample size
- P=proportion of knowledge and attitude from a preview study (0.90) conducted in England
- d=margin of error (5%)
- Z=normal distribution value at a confidence level of 95% (1.96)

Thus,

$$N = \frac{0.90(1-0.90)1.96^2}{0.05 \times 0.05} \quad n = 138$$

10% of "n" was added to replace incomplete questionnaires.

Therefore, the total number of the population size was 152 female students.

### Sampling techniques

Simple random sampling was used to recruit participants in the study population [13]. All four departments (Master of Public Health, Occupational Psychology, Health and Social Care, Health and Well-being) in the FEHW were identified. Each department participant had an equal chance of selection for the questionnaire sent [14]. This was done via balloting to give every department an equal chance of selection.

### Data collection

The data were gathered using a modified semi-structured questionnaire. The questionnaire was generated using literature from previous studies on cervical cancer screening in a similar population in England [15,16]. Moreover, section A deals with the socio-demographic data of the participants while Section B gathered information to assess the level of knowledge on CCS and Section C assessed the attitudes of the participants on CCS. Thus, section D elicited information on the factors influencing the low utilization of CCS and its barriers. The participants' attitudes towards cervical cancer screening were assessed using 5 Likert scale questions. Each successful answer received a score of 1, while every incorrect response received a score of 0. For questions using a Likert scale, a score of 5 indicated the highest rank and a score of 1 indicated the lowest rank.

### Data analysis

The variables were defined for each of the single-choice questions after importing the XLS-format file into SPSS (Statistical Package for Social Sciences). The data was then entered, coded and analyzed using the Statistical Package for Social Sciences (SPSS) version 29.0. Moreover, the data for socio-demographic characteristics and attitudes of female students on cervical cancer screening was presented in tables, frequencies and percentages while the level of knowledge, barriers and practice of female students on CCS was presented in charts [17]. The overall female students' attitude was classified into positive ( $\geq 50\%$ ) and ( $<50\%$ ) for negative attitudes while ( $\geq 50\%$ ) were categorized for good knowledge to determine the level of knowledge of cervical cancer screening among female students and ( $<50\%$ ) was classified for poor knowledge.

## Results

The questionnaire was sent out to 152 participants in the FEHW, only 138 participated, completed and returned the questionnaire. Therefore, the response rate was  $(138/152 \times 100\%) = 90\%$ . Thus, the questionnaire that was completed was appropriately retrieved and analyzed accordingly.

### Section-A: Socio-demographic characteristics of the participants

The social demographic characteristics of the female students who participated in the study. The mean age of the participants was  $35.09 \pm 12.92$  years with 56.5% (78) of the female students majorly African, while a greater number of the participants 60.9% (84) were married. More than half of the participants 63.0% (87) have income less than their family size, while 74.6% (103) of the participants have part-time work employment status (Table 1).

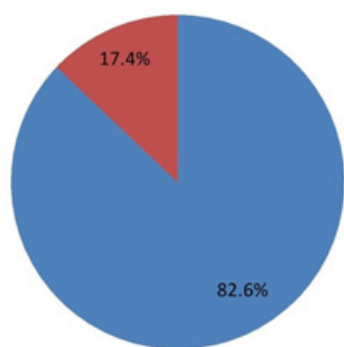
Variable	Frequency (n=138)	Percent (%)
<b>Age (years)</b>		
25 to 35	77	55.8%
36 to 46	34	24.6%

47 to 57	26	18.8%
58 and above	1	0.8%
<b>Mean age (years) 35.09 ± 12.92</b>		
<b>Race</b>		
Africa	78	56.5%
Asia	29	21%
Bangladesh	24	17.4%
Caribbean	7	5.1%
<b>Marital status</b>		
Single	26	18.8%
Married	84	60.9%
Divorced	7	5.1%
In a relationship	21	15.2%
<b>Family size</b>		
Income less than family size	87	63%
Income greater than family size	20	14.5%
Income equal to family size	31	22.5%
<b>Employment status</b>		
Part time work	103	74.6%
Unemployed	35	25.4%
Full time	0	0

**Table 1:** Socio-demographic characteristics of the female students.

### Section-B: Knowledge of cancer cervical screening

The knowledge of cervical cancer screening with 114 (82.6%) said they had heard about cervical cancer screening while 24 (17.4%) said they had not heard about cervical cancer screening (Figure 1).



**Figure 1:** Have you heard of Cervical cancer Screening **Note:** Said they had heard about cervical cancer screening (■); said they had not heard about cervical cancer screening (■).

### Source of Information on cervical cancer screening

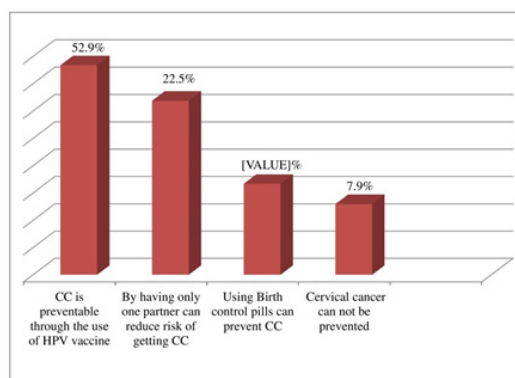
Source of information on cervical cancer screening the table above shows that 52 (37.7%) of the participants mentioned healthcare professionals as their source of information on cervical cancer screening. However, less than half 29 (21.0%) of the participants claimed that mass media was their source of information on cervical

cancer screening while 25 (18.1%), 17 (12.3%) and 15(10.9%) of the participants admitted that friends, internet and books were their source of information regarding cervical cancer screening (Table 2).

Variables	Frequency	Percent (%)
Health care professional	52	37.7%
Mass media	29	21%
Friends	25	18.1%
Internet	17	12.3%
Books	15	10.9%
Total	138	100%

**Table 2:** Source of Information on cervical cancer screening

The methods of cervical cancer prevention among female students, More than half 52.9% (73) of the participants indicated that cervical cancer can be prevented through the HPV vaccine while 22.5% (31) stated that having one partner can reduce the risk of getting cervical cancer. Moreover, 16.7% (23) stated that using birth control pills can prevent CC and less than half 7.9% (11) of the participants affirmed that cervical cancer is not preventable. Therefore, female students who participated in the study have good knowledge of the prevention of cervical cancer (Figure 2).



**Figure 2:** Cervical cancer prevention method.

### Section-C: Attitude towards cervical cancer screening

The attitude of female students toward cervical cancer screening with 74 (54%) of the participants showing a negative attitude towards cervical screening service while 64 (46%) indicated a positive attitude toward cervical screening. Thus, this shows that a significant number of female students who participated in the study have negative attitudes towards cervical cancer screening services (Table 3).

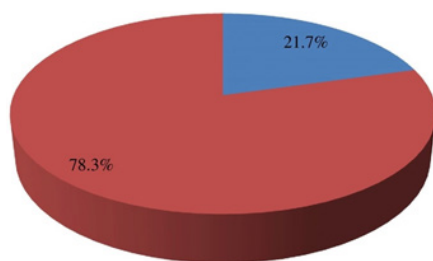
Statement	Strongly agree	Agree	Strongly disagree	Disagree
I feel uncomfortable with male health care giver carrying out pap test.	57 (41.3%)	20 (14.5%)	17 (12.3%)	44 (31.9%)
I do not think my spouse would permit me to carry out CCS	34 (24.6%)	0 (0%)	73 (52.9%)	31 (22.5%)

To carried CCS goes against my cultural values and belief	38 (27.5%)	33 (23.9%)	28 (20.3%)	39 (28.3%)
I do not think CCS is necessary	12 (8.7%)	29 (21%)	51 (37%)	46 (33.3%)
A cancer diagnosis and test make me feel nervous	51 (37%)	42 (30.4%)	18 (13%)	27 (19.6%)
Positive attitude	46%			
Negative attitude	54%			

**Table 3:** Female student’s attitude on cervical cancer screening

### Section-D: Utilization of cervical cancer screening services

Utilization of cervical cancer screening services, 108 (78.3%) stated that they have not carried out cervical cancer screening while 30 (21.7%) admitted that they have carried out cervical screening services (Figure 3).



**Figure 3:** Uptake of cervical screening services of ethnic minority females **Note:** Stated that they have not carried out cervical cancer screening (■); admitted that they have carried out cervical screening services (■).

### Section-E: Barriers to cervical cancer screening

Barriers preventing the utilization of cervical cancer screening with a significant number of 66 (47.8%) of the participants embarrassment and fear as the major factor preventing cervical screening services, while 44 (31.9%) acknowledged marital status as a barrier. Moreover, less than half 20 (14.5%) of the participants mentioned household income and less than two-thirds 8 (5.8%) of the participants indicated limited access to healthcare facilities as a barrier to preventing cervical cancer screening (Table 4).

Variables	Frequency	Percent (%)
Embarrassment and fear	66	47.8%
Household income	20	14.5%
Marital status	44	31.9%
Limited access to healthcare facility	8	5.8%

**Table 4:** Barrier preventing cervical cancer screening services

## Discussion

Results from the socio-demographic characteristics of the participants show a mean age of  $35.09 \pm 12.92$  in a population of ethnic minority women aged 25 to 35. It is important to note that

the majority of the participants (55.8%) who participated in the study were young female students [18]. The study was done under the participant’s socio-demographic characteristics such as age, race, marital status, family size and employment status. Moreover, 56.5% of the female students were African descendants while a greater number of the participants (60.9%) were married. More than half of the participants (63.0%) have income less than their family size, while 74.6% of the participants have part-time work employment status [19-21].

Findings from the study on the knowledge of cervical cancer screening among ethnic minority female students revealed that a favorable number of the participants have good knowledge of cervical cancer screening. Moreover, more than half of the participants (52.9%) indicated that cervical cancer can be prevented through HPV Human Papilloma Virus (HPV) vaccine [22]. The good knowledge of cervical cancer screening services among female students can be linked to the following factors a higher degree of educational qualification of the participants and easy access to reliable and accurate information on the cervical screening programme. Another factor may be knowledge provided by medical professionals, government health agencies and reliable media, websites and journals. The study revealed that the promotion of cervical screening services was supported by peer encouragement and advocacy groups [23]. These organizations offered information and encouraged women to prioritize their health in the issue of cervical cancer [24]. However, this finding is in contrast with the study carried out in 2016 at Ibadan North Local Government Area Nigeria which revealed poor understanding regarding the relationship between cervical cancer screening and early sexual experience. Similar findings were reported in Nigeria in the study conducted by Yahya, where 94% of the participants in the intervention group who participated in the study had extremely poor knowledge about cervical cancer screening [25].

The difference in research findings can be owing to the research population’s differences. However, the poor knowledge of cervical cancer screening can be attributed to a lack of awareness in the study location which may have resulted in low public health campaigns and poor health literacy rates [26]. Additionally, some women may be discouraged from obtaining information or taking part in screening programs by factors like societal stigma and discussion about sexual health on cervical cancer which led to poor understanding of cervical cancer screening services [27].

The findings on the participant’s attitudes toward cervical cancer screening among ethnic minority female students were also assessed in the study. The findings from the study revealed that a higher proportion (54%) of the participants have a negative attitude towards cervical cancer screening while less than half of the participants (46%) only showed a positive attitude toward cervical cancer screening service [28]. According to the study, most of the participants (71.7%) believed that cervical cancer leads to death. The finding of the study indicated that the attitudes and behaviors of ethnic minority women show that they were not actively participating in cervical screening in England because of negative attitudes and the threat of cervical cancer screening [29]. This belief is in line with the HBM Health Belief Model (HBM) theory. According to the theory, factors in determining the possibility of utilizing healthcare services are perception due to the threat of the disease. Therefore, this risk posed by cervical cancer is due to the low utilization of cervical cancer screening services among women [30-32].

Moreover, 52.9% and 22.5% of the participants reported that their spouses do not allow them to participate in cervical screening services while only 24.6% stated that they were supported by their spouses to carry out cervical cancer screening. This negative attitude

can emanate from the patriarchal system in Africa where men have complete power over their families [33]. It can be argued that this negative attitude in this study can be because of cultural and societal stigma surrounding the topics associated with cervical cancer, such as sex and birth control which may have influenced various factors other than health-related knowledge on health-seeking behavior [34].

Additionally, more than 50% of the participants agreed that they feel uncomfortable with male healthcare practitioners performing screening tests. This is consistent study, in which a favorable number of the participants (45.2%) felt that carrying out cervical screening by male healthcare professionals is a factor that contributed to not participating in the screening service. This negative attitude may be due to religious reasons [35]. The study's findings reported that the participants had a positive attitude about cervical cancer screening and treatment and most women believed that prompt intervention for cervical cancer screening helps in preventing the transmission of the disease [36]. Although, numerous factors may have contributed to the positive attitude on cervical screening in the study population such as an increase in knowledge on awareness of cervical screening programme, addressing barriers like cultural barriers and screening-related anxiety which may have promoted a positive attitude towards cervical cancer screening [37].

Findings on the practice of cervical cancer screening on ethnic minority female students found that the majority of the participants (78.3%) have not carried out the screening service despite having a good knowledge of cervical cancer screening. Only less than half of the participants (21.7%) indicated that they have carried out the utilization of cervical screening practice. It can be argued that since the majority of the participants who participated in the study were females of ethnic minority groups, the low participation rates among the participants may be attributed to socioeconomic issues such as lack of health insurance and financial challenges [38]. Moreover, ethnic minority female students in the UK could have faced further challenges in having full-time employment and poverty which may have made them less likely to seek out screening practice [39].

Nevertheless, it is worthy of note that the low uptake of cervical cancer screening practiced by ethnic minority female students in the UK is in line with the HBM belief theory. The assumption made by the health belief model theory may be viewed that women will be more likely to have a cervical cancer screening if they believe they have a high chance of developing the disease and if the risk is high [40]. According to the study, 53% of the women from Black and Asian Minority Ethnic (BAME) backgrounds significantly do not carry out cervical cancer screening compared to 47% of the white British women who participated in the screening services. The reasons for low cervical cancer screening uptake were due to limited English proficiency among some ethnic minority women which made them difficult to understand the purpose of the screening, thus resulting in low participation. Besides, one study carried out in America, showed that unmarried Chinese immigrant women were found to be less likely to carry out cervical cancer screening [41]. The finding has been attributed to the idea that because single Chinese women do not engage in more sexual activity, they may not be at risk of experiencing gynecological issues which had made Chinese immigrant women unable to participate in cervical cancer screenings in the UK. However, the report released by Cancer Research UK (2015) disagreed with this finding. According to the report, the increase in the utilization of cervical cancer screening practices in the UK has resulted in a considerable decline in the incidence and death in countries with good screening methods. This can be because of the availability of healthcare professionals to carry out cervical cancer screening in Western countries, the access to healthcare facilities and

the understanding of cervical cancer services in the UK [42-44].

Regarding the barriers to cervical cancer screening among ethnic minority female students. The study showed that a favorable number of 66 (47.8%) of the participants indicated embarrassment and fear as the major barriers preventing cervical screening services. Past negative experiences of cervical cancer screening were the major barriers to cervical screening tests among Somali women in London [45]. Moreover, these findings support which claimed that women of ethnic minorities reported Pap smear examination to be extremely painful. The challenges preventing immigrant women from attending cervical cancer screenings is their fear of cervical screening discomfort and pain [46]. According to the study, the challenges of the screening process are the reasons why women may feel nervousness and pain during a cervical cancer screening. However, using a strategy where women who have been screened share their personal experiences with unscreened women to dispel these myths and misconceptions will help in reducing this barrier. Although it can be disputed that these fear and embarrassment can be a result of body image concerns, feelings of shame and anxiety among ethnic minority women when it comes to discussing sensitive topics such as cervical cancer screening which may have led to an increased sense of body dissatisfaction, consequently, impede their willingness to engage in the screening services. Consequently, these barriers show the need for tailored services such as implementing patient care programme that can give emotional support, counseling and encouragement to reduce screening-related fear and shame to meet the specific needs of ethnic minority groups [47].

Moving forward, 31.9% of the participants acknowledged marital status as a barrier to cervical cancer screening. As noted in the study carried out in Canada, which revealed that being at age 36 to 49 prevented immigrant women from going to cervical cancer screenings. Besides, the rates of cervical cancer screening among ethnic minority women residing in economically developed countries were shown to be significantly influenced by age, location of birth, marital status and educational level. The study shows that married women are more likely than unmarried women to engage in simple and fundamental preventive health-seeking behaviors like practicing cervical cancer screening, eating better balanced meals and exercising. This can be attributed to the fact that these unmarried women may feel that they have a lower possibility of developing cervical cancer than their married peers [48]. This perception may be based on the belief that they are not sexually active or only have a few sexual partners, which would reduce the perceived need for cervical screening [49]. Nevertheless, to address this barrier, there is a need to emphasize the significance of regular screenings and advocating for unmarried women's needs brought on by fear and embarrassment and makes them take control of their healthcare. In addition, expanding access to affordable healthcare services, such as cervical cancer screening, can be important, especially for encouraging unmarried women to have frequent screening tests [49]. This may entail providing cervical screening services for free or at a reduced cost, expanding insurance coverage alternatives and implementing outreach programmers that are especially geared towards these women.

Furthermore, 14.5% of the total participants in the study identified household income as a barrier to cervical cancer screening practice. According to the study barriers to the low utilization of cervical screening were significantly influenced by the household income level, which was a significant factor. Additionally, this finding supports one study carried out in England which showed that there is a relationship between the household income of ethnic minority women and the utilization of cervical screening services [50]. This is because ethnic minority women may face challenges with access to

healthcare services, particularly cervical cancer screening, due to low household income. For women with low financial means, screening tests may be sometimes expensive and may necessitate extra fees, such as travel expenses to go to the screening facility consequently serving as a barrier to cervical screening attendance.

The study affirmed that lack of household income is not only considered as a substantial barrier to the utilization of cervical screening. There are other socioeconomic factors such as cultural beliefs, language barriers and perception of healthcare facilities which might still have an impact on screening behaviors. Moreover, family income may not only constitute a substantial barrier to cervical cancer screening among ethnic minority women in the UK. Therefore, to increase screening rates and decrease inequalities in cervical cancer outcomes among ethnic minority communities, it is imperative to keep addressing these factors comprehensively.

It is important to note that 5.8% of the participants indicated limited access to healthcare facilities as a barrier preventing cervical cancer screening. Moreover, 52.4% and 28.3% of the participants who took part in the study reported that they had never had the disease and lacked knowledge of the screening location. From the study, only 1.2% of the total women received the vaccinations due to lack of access to the screening location.

These factors may be the result that ethnic minority students lack cultural sensitivity and awareness of special healthcare needs because of the uncertainty about their immigration status or lack of the appropriate healthcare documents, making them afraid to access the screening center for fear of fees.

Also, the shortage of healthcare staff that are from ethnic minority groups in NHS (National Health Service) and other hospitals who do not understand the student's healthcare needs based on their peculiarity may pose a barrier to these students since the students may not be able to express their health condition to the British healthcare provider. Therefore, this highlights the need for greater inclusivity of health care professionals in NHS and awareness of cervical cancer and its available screening locations. Additionally, more accessible, affordable healthcare services for women in this region will help reduce the death rate. Nonetheless, having diverse inclusive healthcare staff from different ethnic groups will help to address this barrier.

Furthermore, school campuses should provide cervical cancer screening facilities so that students may easily have access to them. Additionally, to sensitize students about the availability of screening facilities and the services offered, information on cervical cancer should be promoted on university campuses. This will help to increase students' capacity to actively participate in cancer prevention and screening programs. Moreover, the NHS should collaborate with non-governmental organizations and student groups to ensure a high uptake of cervical screening rates to reduce cervical cancer screening barriers.

## Declarations

### Ethics approval and consent to participate

This research was conducted in accordance with the declaration of Helsinki. The study obtained ethics approval from the University of Wolverhampton Research Ethics Committee (UOWREC). All the participants gave their informed consent to participate in the study and the use of anonymous data collection methods ensured confidentiality and the data analysis did not involve any identification of the research participants. It was confirmed that all methods conformed to the suitability of research ethical standards.

### Availability of data and material

Upon a reasonable request, the corresponding author will provide the datasets used/ analyzed in the current study.

### Authors Contribution

Covenant Chigamezu Kinika participated in the preparation of the manuscript as well as the data collection, analysis and interpretation. Writing proposals, analyzing data and interpreting findings were all done by Abigail Ugochi Kinika. The final manuscript has been reviewed and approved by all authors.

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